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SCARBROUGH

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SPAGYRICALLY

ANATOMIZED.

BY

Geo. Tonſtall, Doctor of Phyſick.

LONDON,

Printed by *J. M.* for the Author.

MDCLXX.

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BY

Geo. Starkey, M. Doctor of Physick.

LONDON

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PREFACE.

Nulla roſa naſcitur ſine ſpinis.

DOctor Witty *in his Epiſtle to the Reader complains, that* Mr. Simpſon *by giving him the trouble of anſwering his Book*, hath interrupted his deſign of a Latine Copy upon the ſubject of this *Spaw*, which he thought ſhould have ſeen the light this year. *I would not willingly hinder any good work; let this little there-*

fore that I have writ, but ſerve only as an Appendix to his third Volume, and I ſhall clothe it in like faſhion: far be it from me to eſpouſe the quarrel of either of them; I profeſs my ſelf a friend to both; for if I ſhould not walk uniformly betwixt Dr. Witty's *Library, and Mr.* Simpſon's *Laboratory, I might ſuſpect my ſelf a lame Phyſician:* Hippocrates *and* Helmont *I declare are the two great lights that rule in my Hemiſphere.* Galen's *method of Phyſick may juſtly be named rational ſo far as he writes after the old man his Maſters Copy, I dare not ſpeak further for him.*

I hope in this Tract my writing is so candid, that it may be observ'd what I have said is not ad personam, *but* ad rem. *And that I have not concern'd my self in any word which Dr.* Witty *has been pleas'd to say in his two Books, but only what was necessary to take notice of* me defendendo.

It is but one Position that I have affirm'd upon the whole subject; if it be daubed up with untemper'd Mortar, let who will pull it down; but if its foundation be built upon mechanical demonstration, it must stand firmer than Hercules *Pillar: by the Process that I have taken, the*

material principles which I asſert to be in this Spaw *are preſented to our ſenſes, theſe are infallible judges* (poſitis omnibus requiſitis) *of their objects.*

Dr. Witty's *failure was, in that he left off where he ſhould have begun: after he had obſerv'd what is moſt conſpicuous about the* Spaw, *and tryed that the Gall tinctured the water of a dark purple colour, contents himſelf with fair probabilities for affirming his five principles, and then,* pag. 15. leaves it to others to try Experiments, and make what new diſcoveries they can.

What

What unexpected things hath Anatomy discovered in the body of man these late years? to derogate a tittle from the honour of these happy improvements of knowledge, were to speak against the light, and to bark against the Moon: yet why must the usefulness of this noble Art be confined to the Animal Kingdom only? The grounds of Anatomy in the vegetable and mineral Kingdom, laid down by Tachenius, *doth neerly conduce to the discovery of the Nature, Cause, and Cure of diseases, if I know any thing. The little dessection that I have made of*

Scar-

Scarbrough's Diana, *gives the cauſe why one crys, great is* D. *of* S. *and another at the ſame time decrys it as much: the general account for this confuſed noiſe is, becauſe as the liquor is commendable, ſo the dregs are inſufferable: the Eſſence of it fit for the Cup of a Prince, the* caput mortuum, *which is Sand and Clay, fit for nothing but the Brick-layers Trowel. Hence it doth follow, that thoſe who are weak in their digeſtive faculties, and ſtrong in their diſtributive, theſe may find good by drinking this Water, and no harm by the ſordid feces, due*

due care being taken: but those who are weak in both, will experience the contrary. To all those that have a petrifying character seminated in them, I say of Scarbrough *water,* Procul Ite, cito abite, nunquam redite.

SCAR-

SCARBROUGH SPAW SPAGYRICALLY ANATOMIZED.

BEfore I enter into this Diſcourſe, I am neceſſitated to remove an Objection, leſt I ſtumble on the Threſhold: Says my honoured Patient, Laſt Year you perſwaded me, that *Scarbrough* Water was to be preferred before *Knaisbrough*; this Year you are of a contrary opinion, and there-

therefore I know not how to truſt you. I anſwer, firſt *excuſively*, you may note hereby, that I am not *pertinacious*; *conviction* of an *errour* will work in me *converſion* to the *truth*: Again, I did commend to you no worſe thing than that which I took my ſelf; 'twere to be wiſhed that all Phyſicians were bound with this Girdle. Secondly, *directly*, for your particular trouble, *Gravel*, and *Stone in the Kidneys*, I did prefer the *Nitre* at *Scarbrough* before the *Vitriol* of *Knaisbrough*: *Appello Coronam*, if that be not a more noble principle than this; yet muſt it be underſtood only *cæteris paribus*. Here my miſtake was incurable, until I got opportunity to ſift *Scarbrough* Water in the Fire, the beſt *Microſcope* could not have ſhown me what lay in the bowels of it, only *Spagyrick Anatomy* made the Dirt appear to

open

open view. For ſatisfaction to others, who may cenſure my *wandring* from *Knaisbrough* to riſe from *wavering* in opinion, take this plain Narrative.

Anno Domini 1666. the famous fortunate Chyrurgeon Mr. *Thomas Holiard* of *London* (may this man be bleſſed in his deed) cut me for the Stone, which weighed four Ounces and a half; Six weeks after, I was able to take Journey; the Doctor there (my friend) told me his doubt, that *Vitrioline* Waters were too ſharp for me to drink, becauſe of my green wound ſo lately healed: notwithſtanding I reſolv'd for *Knaisbrough*, remembring Mr. *Stones* caſe which his Father related to me long ſince, which was this; after his Son was cut, a large Stone taken out of his Bladder, the wound did not perfectly heal, (notwithſtanding he had all the help that

Lon-

London could afford) for about three Months time, at last Sir *Theod. Mayrne* did advise him to *Knaisbrough* Water, he had not drunk it fifteen days till he was perfectly healed; for which great Cure done by it, he did frequent that *Spaw* for many years after: this Water I mixed with white Wine, which brought away by Urine abundance of mucous matter. *Helmont* the Prince of Reason sets down the cause hereof in these words; *ubi custodes malè se habent, continuò plorant partem proprii alimenti quod sibi assimilare debebat:* I was glad to see that this *Spaw* cleansed the Bladder from that glutenous stuff, which (if let alone) would undoubtedly have laid a foundation for another Stone. Sandy Gravel (which few or none are exempted from) falling amongst it, and mixing with it, must in continuance

gather

gather to a hard ſubſtance, too great to paſs away. I wiſh all thoſe that ſhall receive like mercy with me, would uſe the like means to prevent a relapſe of that formidable Diſeaſe the Stone.

Anno Dom. 1667. I returned thither again, the ſeaſon proved wet, during which time, the *Spaw* proved very weak of the mineral, this diſcouraged me from drinking much of it: I then blamed the great Ditch about the Fountain, as the cauſe of impoveriſhing the *Spaw* of its principle, for I judge it was as rational to pare an Apple, and to peel the Bark off a Tree, and hereby not indemnifie them, as to cut away the ſurface of the earth about a mineral Fountain; ſtanding water abiding all Winter in theſe deep Trenches, by ſinking down through the ſoftned earth, makes paſſage into the cur-

rent of the *Spaw*; then every ſhowre of Rain in the Summer will find the ſame crevices and clifts to deſcend into it: If this may ſuffice to get this fault mended, I ſhall be glad.

Anno 1668. being moſtly concern'd to look well to my ſelf againſt the threatnings of my former diſtemper, I viſited *Scarbrough* during mine abode there.

Firſt, I took notice what Doctor *Witty* ſays, *pag.* 151. *that after he had exhaled the water from the body of the minerals, it would not unite with other waters, but lie all at the bottom undiſſolved.* By this trial of his, I was certain that in that body of Minerals there muſt be other things containd than his 4 or 5 principles; for *Allom*, *Nitre*, *Salt*, and *Vitriol* of *Iron*, are amicable to water, and without any force diſſolvable in it, neither may it be ſuppoſed that

the

the fire in exhaling the Water can alter the texture of Salts, ſo as to hinder their diſſolution; for the more Salts are calcined, the more ſpeedily do they imbibe the Water, as thirſting for it, as Ice doth, therefore eaſily melt in Water, becauſe it proceeded from it, for the ſame reaſon Salts muſt do ſo likewiſe. If any one doubt of this, let him try the Lord *Bluy*'s Experiment, that learned Frenchman, *viz.* calcine Sea-Salt, deliquiate it, then diſtill all that will come over, repeat this proceſs, and you will find that all the Salt is turned into Water, as devoid of all ſaltneſs, as is diſtilled Rain Water.

Next thing I obſerved was theſe words of his, *pag.* 13. *Nor can the principles be ſeparated further than I have already expreſſed, namely, by putting Gall to the Water, notwithſtanding many ingenious Gentlemen*

have endeavoured it: I wiſh thoſe he means had applied their wits about the uſefulneſs of Experimental Philoſophy, as the Honourable *Boyle* has done, and then their endeavours would have ſucceeded here, and to higher purpoſes than the ſeparating the principles of *Scarbrough Spaw*; where the difficulty lay that obſtructed the ſeparation, I cannot apprehend, for *fire* alone is an inſtrument ſufficient to effect it. This *ſubſtance* (if I may ſo call it) being as ſubtile as the light, muſt penetrate through the *centre* of every *pore* of the mixed Water, and becauſe of its property to aſcend upward, it doth inceſſantly diſquiet the *lodge* of *heterogeneals*: during this reſtleſs Motion, *like* things do *occur* with *like*, and their *Nature* is to *unite*: after this manner (as I conceive) it comes to paſs that *ignis ſegregat heterogenea, congregat*

gregat homogenea : by no other artifice did I extract out of the *Spaw* Water a pure *nitroaluminous Salt*, and a large quantity of *feces* apart, both which I then ſhewed to the Honourable Lord *Faulconbridge*, who can remember what I ſaid then to his Lordſhip of it. At this time I could not be certain but that much of the Sand which ſettled to the bottom in the Preparation, came through the careleſneſs of the Porter that brought me the Water, and therefore I could not come to a poſitive determination by this Experiment; only I wrote to Mr. *Simpſon*, wiſhing him to forbear publiſhing any thing concerning *Scarbrough Spaw*, till he had ſpoke with me, becauſe I had made a tryal what was contained in it; his anſwer was, my advice came too late, for his Book was in the Preſs, ſo far was I from having a hand in

the framing his Book, as Dr. *Witty* was made to believe by the report of others.

This Year 1669. I returned thither, and though I dropt *Oleum Salis* tinctured with Gold in every other Glass, hoping thereby to cleanse off the *sordes* of the *Spaw*, yet after a fortnights drinking, it gave me a fit of the Stone, which from the time Mr. *Holiard* cured me, I had not felt before. I brought the Water home with me, that I might be sure that nothing extraneous to the *Spaw* might interrupt a *critical Analysis* thereof; the product confirmed my first Experiment, which I made at *Scarbrough*; all the materials that can be found in it, are three, first *Raments* of Stone, secondly a *Nitroaluminous* Salt, and thirdly, a *gleeb* of *Allom*: their proportions are thus, of the *Stone-powder*, one Ounce

and

and three Drams; of the *Nitro-aluminous Salt*, one Ounce and six Drams; of the *Blew-Clay*, which is the *gleeb* of *Allom*, three Drams; the *active principles*, and the *caput mortuum* are equal; so that if Dr. *Witty*'s tryal be true, that five Quarts of Water give one Ounce of the body of Mineral (as he calls it) you take half an Ounce of Stone and Clay into your Bowels, every such quantity you drink.

Here you see a cause (as I observed before) why this Body of Minerals would not dissolve in Water, namely, the Stone and Clay by the heat of the Fire (while he exhal'd the Water dry from them) become more compacted together with the Salts, than when they were in the Fountain; whereas when these Salts are separated from their dross, they melt as easily as Snow in Water.

You will ſay, how comes it about, that there is ſo much Filth in *Scarbrough* Water, as you ſpeak of? For anſwer, take notice, Dr. *Witty* tells you, that the *Spaw*, which is a quick Spring, cometh out at the foot of an exceeding high Clift, all the Stone and Earth that maketh up this Mountain is big belly'd with *Nitre*, *Allom-Stone* here and there mingled in it; after the Spring has run through this high Hill, the *Spaw* is brought forth, which is fair and clear to look to; I cannot but compare it to an Harlot, of whom it is ſaid, She eateth and wipeth her mouth, and ſaith, I have done no wickedneſs. This hungry *eſurine* Water, after ſhe has devoured Stone in a large quantity, as if that were not ſufficient for to grate her Teeth upon, ſhe hath ſwallowed both Cup and Liquor of the Allom. Becauſe I have dealt with her, as

Æſop

Æſop dealt with the Boy that had eaten the Figs, made her vomit them up again; whoſoever is angry with me for doing ſo, I muſt bear it. If any of her friends think I do bely her, let them for their ſatisfaction firſt anſwer this Query.

From what cauſe is it, after you have drunk a Month of it, then, if not before, it takes a Reſty, *Jadiſh fit*, will neither go backward nor forward? A Noble Lord complained to me that the Water dealt thus with him: his Lordſhip having drunk it with ſucceſs about a Month, it then ſwell'd him at ſtomack two or three laſt days, and would neither work by Urine nor Stool, though he took his uſual Phyſick with it, as formerly, the Scotch Pill, which is an Extract of Aloes: I advis'd him to take one Dram and half of the pure Eſſence with the *Spaw* Water; by the help

of

of this, and the ſaid Pill, he had plentiful Evacuations in that Afternoon: thus being quitted of his oppreſſion, he meddled no farther with the Water. This Dr. *Witty* hath carefully obſerved, and therefore adviſeth thus, *pag.* 211.

If any man finds, that after benefit once had by the Waters, he begins to decline again in his health, as that his appetite or concoction decay, or the Waters paſs not ſo well as formerly; but cauſe diſtention, either in the Belly or the Veins, and ſo bring on a difficulty of breathing, or pain in the head, or the like, it is then time wholly to deſiſt, and to proceed no farther.

This is honeſtly ſpoken, but is this the manner of other Waters, when they are fitly ſuited to a Chronical Diſtemper, and the Patient find once benefit by them, do they produce in him afterwards

ſuch

such evils as these? or rather, the longer they are drunk till the Cure be wrought, the nearer the Patient is carried to his desired end. Is there not therefore a sting in the tail of *Scarbrough*-Water? are not the *stone-feces plaistered* upon the inner Coat of the Bowels, disturbing their *peristaltick* Motion, and obstructing the *attraction* of the *lacteal* Veins, the cause of all those evils?

This Query thus answered, for further satisfaction proceed after this manner.

First, Take a large quantity of the clear *Spaw* Water, in case you fear any Sand may be taken up with it, put all through a Woolen Cloth, boil it till half be consumed, clear off that Liquor, then see how much Sand you find at the bottom; which is nothing else but part of the ni-

trous

trous Rock, which the Water has diſſolv'd, exhale that Liquor lower to the thickneſs of Oyl, then pour it forth into a wooden Veſſel; ſet it by in the cold, and the *Nitre* and *Allom* ſettles into *cryſtals*: when that Liquor will caſt forth no more of theſe, then exhale the liquor dry, put Water to it, and filter it, and you will find more *Stone-Powder* in the Paper; exhale this Water perfectly dry, then burn it in a Crucible, diſſolve it with Water, and filter it, there will you have the *blew Clay*; which is nothing elſe but the *gleeb* of the *Allom*: If you pleaſe to proceed further, diſſolve the firſt *Cryſtals*, *exhale*, and *filter*, ſo often till the *Cryſtals* be pure and white, ſo will be ſeparated more *ſandy Clay*. By all this that I have ſaid and proved to thoſe that will truſt

their

their own eyes, I affirm this as my Position (*viz.*)

The Nature of Scarbrough Spaw *is petrifying.*

First, I ſhall prove it by the Authority (which to Dr. *Witty* is *inſtar omnium*) of *Kircher*, *lib.* 8. *p.* 46. *Quæritur quid propriè ſit ſuccus lapidificus; dico eſſe Saxum nitroſum, aquâ eliquatum*; his whole Chapter, *de Origine Succi petrifici*, doth make manifeſt this truth, as if it were written with the Sunbeams.

Secondly, by Experiment, I made it viſible that the *Spaw* is moſtly nothing elſe, but the *nitrous* Stone melted in Water, beſides the *Allom-ſtone* that is imbibed in it; There is a famous petrifying Water at the Bridge-end of *Knaisbrough* Weſt-ward, known by the name of

of *Dropping-well*, a *Stillicidium* of a *nitrous* Rock. I sent for a Quart of this Water (which was very clear) and distill'd it in a *Glass Retort*, which gave a Dram, wanting ten Grains) of pure white *Nitre* and *Stone*: by this 'tis observable, that *Scarbrough Spaw*, because of the *Allom* juice joined with the *Nitre*, has corroded and imbibed more Stone than this notorious *petrifying* Water at *Knaisbrough*.

I would not be here mis-understood, as if I did from hence infer, that *Scarbrough Spaw* is more petrifying than this Water, which will set a stony Crust upon a Loaf, or piece of Wood, after it has lain in it a few hours: this manifest token of petrifaction *Scarbrough* Water is not charged with. The reason of the difference I apprehend to be thus, *viz.* the *alkali* of the *Allom* in *Scarbrough* Water hath in

part

part imbib'd the acidity of the Nitre, and therefore it cannot so penetrate the Wood put in it, as to leave a crust of Stone upon its superficies, which the other Water having Nitre alone in it will do. That *Allom* is an Alkali Salt, is plain from its saponary property, this the Dyers have experienced: Again, when *Allom* is put in a Crucible over the fire, it burns to a light porous Cinder, *Vacua esse alcalium corpora demonstravit Tachenius.* Nitre on the contrary doth flux in the Fire into a hard compact body, whereby it is evident, that in Nitre the acid hath the predominium, in Allom the Alcali; and therefore *Scarbrough* Water cannot manifest its petrifying property by putting Wood into it, and crusting it over as the other Water doth: yet he that will affirm, that *Scarbrough* Water hath no such occult quality

in

in it, must first prove that it carries no Stone Powder in the Bowels of it; which is manifestly false.

Thirdly, By the *Aporrhœa Spiritus lapidifici*, there are found on the Clift neer the *Spaw*, Muscle-shells, and such like things petrified to a stony substance; one of these was shown to Dr. *Witty*, this year, but he accused the Sea for petrifying it; if so, what befel *Lot*'s Wife *judicially*, is not so great a miracle, as that it is not our *lot* naturally to be turned into *Pillars* of *Salt*, that eat so much of *Sea-Salt* daily; again, when the Earth of the Cliff falleth down by dashes of Rain upon the Sands, as soon as the watery moisture is exhaled from it, it doth petrifie. Dr. *Witty* tells you of a lump of Earth thus petrified that will load two Carts, which because it was of a redish Colour, and hard, he mistook it for Iron.

Fourthly,

Fourthly, by the effects the *Spaw* produceth, primarily in thoſe that are inclinable to the Stone: I wiſh *Scarbrough Spaw* had given me no juſt occaſion to complain of it in this particular; beſides what happened to me there, (as I ſaid) I was no ſooner come home from thence, but another ſharp fit tormented me for two days; that I am not alone in this accuſation, may be gathered from Dr. *Witty's* Book; if ſuch complainings as theſe had not been vulgarly ſpoken, I ſuppoſe, ſo wiſe a man as he would not have ſtarted this Objection againſt the *Spaw*, *pag.* 150. *Another* (ſays he) *never had a fit of the Stone till drinking of theſe Waters, though few of his Family have eſcaped that Diſeaſe*: is not this a ſhrewd ſign of its *petrifying* nature? his *Parentheſis* doth not invalidate it, for, *multæ ſunt in potentia, quæ nunquàm reducuntur in*

alum; but take his anſwer to this Objection; *Even juſt ſo a Light is brought into a dark Room, by which a Thief is diſcovered, therefore Light is ill for a Thief; by the ſame conſequence that* Scarbrough Spaw *is ill for the Stone.* An Objection of this weight muſt not be anſwered ſo lightly, we that have been afflicted with this Diſtemper cannot be affected with ginglings when they tend to our miſchief: But to anſwer, The Thief is in the *Spaw*, the Water was not ſuch a dark Room where the Thief has lain hid ſo long, but if a Light had been brought in by a Chymiſt, this Thief might have been diſcovered before this time, and then *Nephritick* men would have been aware of it. I grant, by reaſon of abundance of *Nitre* in the Water, it will force out ſtony Gravel in the Kidneys, when any is there; but I am cer-

certain alſo becauſe, of the plenty of *Stone filings* that are in it, the Water will occaſion the *breeding* of Stones in the Kidneys, where, *pro tempore*, there are none; ask thoſe that have quitted themſelves of the Stones they voided by drinking the Water, if after they returned home, fits have not come on them more frequently and ſharply than before they drank of *Scarbrough-ſpaw*. I proteſt to the world, both as to my ſelf, Relations, and Patients, I have found it ſo: to ſhew the difference betwixt *Scarbrough* and *Knaisbrough* Water (as to this petrifying property) I ſhall mention a remarkable Obſervation of Mr. *Henry Proctor* of *Farnly*, I had the relation of it from his own mouth when we were together; this Gentleman was brought very low in an Hectick Fever, and ſadly troubled with ſhortneſs of breath,

he consulted with Dr. *Henry Poor* for Cure, but found no Remedy; he then applied himself to Dr. *Neal*, who prepared his body, and advised him to drink *Knaisbrough* Water, which caused him cough up *several Stones* daily till he was perfectly cured. He does enjoy his health very well ever since, using those Waters once a year; afterward he married, and now is Father of two Children; if this Patient had been sent to *Scarbrough-Spaw*, what had become of him let others judge; as the Disease of the Stone doth immediately proceed from a *petrifick Spirit*, the cause *sine quâ non*, so *Jaundise* and the *Gout* have their ἀιτιὰ from it, hence it doth follow, that, *secondarily* these two *Distempers* are dangerously *exalted* (in bodies that are inclinable to them) by drinking this *Spaw*: for evidence of this truth,

truth, I ſhall give inſtances: Firſt, the Lord *Erwin* went from his Houſe at *Temple-Newſam* to *Scarbrough* (upon what other account than to divert himſelf there with the company of his friends, I know not) after he had drunk the Water, and was returned home, preſently the *Jaundiſe* ſeizes on him, of which Diſeaſe he ſhortly died, though Dr. *Taylor* uſed all means for his remedy; now this I ſay, all *ſweet Spaws* in the World have a property common to them, that they are of a *deopilating* nature, and though they may not ſuit to every Diſeaſe, yet for the removing of grand *Obſtructions* (the cauſe of moſt Diſeaſes) they are generally the *beſt*, and moſtly the *laſt* advice of all *Phyſicians*; what reaſon then can be given why this Honourable *Lord* by drinking *Scarbrough Spaw* Water had not the *Obſtructions* of

his Gall opened, but contrarily brought into this irrecoverable Diſeaſe that kill'd him? I ſay what reaſon elſe, if not this, *Scarbrough* Water did *petrifie* that *Sulphurous Saline* humour in the *Veſica bilaria* into Stones, too great to paſs through the *porus*? Dr. *Witty* blamed his too liberal drinking of wine with it (as he ſaid to my ſelf this year) but what harm could that do more than to increaſe Choler, which humour unpetrified is moſt eaſily purged away of all others? That Stones do as uſually concrete in the *Gall*, as in the *Kidneys*, in men as well as in beaſts, who doth queſtion? I was preſent many years ſince at a *Phyſick Lecture* in *London*, when the Profeſſor in the Diſcourſe of the *Jaundiſe* brought forth three or four little *Stones* of *Gall* wrapt up in his Handkerchif, to ſhew them to the other

Doctors

Doctors there, relating that a *Gentlewoman* of the *City* afflicted with that Diſeaſe, after many fruitleſs attempts made by him for her Cure, at laſt was put to it to give her a Doſe of ſharp working Phyſick, which quitted her of thoſe Stones, whereby ſhe forthwith recovered: if any object, that ſuppoſe the *Gall* be petrified, yet it cannot cauſe death in ſo ſhort a time as this Lord took his Diſeaſe, and died in it.

For anſwer, let him conſult *Helmont* with *Sylvius*, and there is enough to ſatisfie him, that the *ſecond fermentation* made by the *ſuccus pancreaticus*, and the *Gall*, are as neceſſary for the preſervation of life, as the *firſt fermentation* is, that's in the *Stomack*; though in an Oxe Gall there is often found a great Stone, notwithſtanding the beaſt keeps health and liking till the Butcher ſlaughter him, yet

then there is abundance of liquid choler beſides in his *Veſica bilaria*, ſufficient to perform *fermentation*; I ſhall mention but two other inſtances of this year in our Town. An *Alderman* whoſe Father ſome years ſince died of the *Jaundice*, but himſelf was never troubled with it, till after his coming from *Scarbrough* Water, then did the *Symptoms* of this Diſeaſe appear, only it did not manifeſt it ſelf either by *Urine*, or by *Colour* of his body, which gave me a great cauſe of ſuſpicion that the water had *petrified* the *Gall*; with *Chalibeat*, and other *Icterical* drinks, by ſlow degrees he recovered.

A *Merchant*'s Wife with Child, for company of her Husband, came to *Scarbrough*: Dr. *Witty* in his Book approving the Water ſafe for ſuch, ſhe deſired to drink of it, upon her return home, a tormenting

pain

pain ſeized on her right ſide, for mitigation of this extream dolour, and prevention of a Feaver, *Phlebotomy* was thrice ordered, then an *Antimonial* Vomit, yet ſo obdurated was the Gall, by the *petrifying* property of *Scarbrough* Water, as I ſuſpected, that none other ſign appeared of the *Jaundice*, but a return of her pain three or four times over, at length a *ternary ſpirit* of *Wine*, *Nitre*, and *Mercury elixerated* diſſolved the congealed Choler, and then did the Diſeaſe ſhine forth in its *ſaffron* colour; after *three recidivations* ſhe was pluckt out of the Jaws of death, beyond the hopes of all her friends, and is now well delivered of a *luſty Boy*: Let it be here obſerved that I practiſe according to conſcience, and let thoſe She-Tatlers, who when they have done mumbling over their Beads, come

to

to a Feaſt, and there mutter hard ſpeeches againſt me for dealing ſo ſeverely with this Patient, take notice that it is my principle, when I ſee my duty, to purſue it to the *hazard* of my *credit* with ſuch as them: and though I be ſingular in this point from the moſt of my Brethren, whoſe wiſdom it is to ſecure themſelves from an evil report, by doing *nothing* in a *doubtful* caſe; yet I have not ſo *learned* Chriſt. The Maxim is true, *quod unicum eſt, non deliberandum eſt*, and the reſolution is Chriſtian, *Let us quit our ſelves like men* of *Art* and *Integrity*, and let *the Lord do what ſeemeth him good.* Pardon this digreſſion, Reader.

Dr. *Witty* gives an inſtance, *pag.* 180. of a Knight and his Lady in *Lincolnſhire*, by drinking the Water at home for the *ſcurvy*, both of them took the *Jaundice*, which they

they recovered not from, till *Chriſtmas* following; he blames the diſtance of place from the Fountain for this fault of the Water; but all that can be charged upon drinking at a diſtance, is, that it may diminiſh the good, and increaſe the bad qualities of the Water which are innate.

The Gouts inveterate malice is known to ariſe from a *petrifying* property of its *acid Spirit*, hence 'tis ſaid, *Tollere nodoſam, neſcit medicina podagram.* If loſers may have leave to ſpeak, I ſhall mention how *Scarbrough* water dealt with me as to this Diſtemper, which all my life long I never felt the leaſt touch on before: no ſooner was an uſual Stone ſlipped into the Bladder, from the left Kidney (of which I have ſpoke) but immediately *ictu oculi*, a Thunder-bolt from the right Kidney darted into the

the joint of the great Toe, which cauſed me to go limping a fortnight after: Thus have my Reins tryed what is that water of *Scarbrough Spaw*. That I am not alone neither in this accuſation, hear Dr. *Witty*, pag. 149. *Others drinking without due preparation as was neceſſary (peradventure to ſave ſome petty charge) have fallen into the Gout, the water contracting heat for want of ſpeedy paſſage, being thrown by nature upon the weak Joints, have hence inferred that theſe Waters cauſe the Gout.* Anſwer, Theſe Gentlemen without peradventure may be ſuppoſed to have neglected that which is judged neceſſary for them to do before they drink Water, yet I do aver, no *Spaw* in the world has leſs need of preparatives, and more need of Purgers than this of *Scarbrough*: it was never obſerved by me, that any at the firſt morning

ing draught of this Water, wanted a ſpeedy paſſage by the back door. Though I cannot approve of his Notion touching the *διότι*, how and wherefore the water cauſeth the Gout, yet in the *ὅτι*, that it does ſo in Bodies inclinable to that Diſeaſe, we are both agreed. Thus having proved by all manner of Arguments both *à priori* and *à poſteriori*, that *Scarbrough* water is *petrifying*, and have manifeſted that *Knaisbrough Spaw* (which partakes of the Vitriol of Iron) by a famous Inſtance is quite otherwiſe; it now remains, only that I make out *Scarbrough* water has no Vitrioline Spirit in it. In this undertaking, I ſhall approve my ſelf a greater friend to *Scarbrough* than Dr. *Witty*, who maintains the contrary, for if in this water the *eſurine* Spirit of *Vitriol* be joined with the *Volatile* Spirit of *Nitre*, of which

which this *Spaw* doth chiefly partake; how then doth it differ from *Aqua Fortis*, that deadly *corrosive* water, which is nothing else, but these two *acid spirits* inseparably united together? if he say these two are not all, there is Allom and Salt also, this makes the Water worse, for a Spirit from all these will make an *Aqua Regia*, which doth corrode *Gold* it self, the hardest of all Metals to dissolve. If it be said these *corrosive* Spirits are *extorted* by *stress* of *fire* from their bodies, which extraordinary heat will not be granted to be in the bowels of the Earth. I answer, this possibly may excuse *à tanto*, but not *à toto*: for first, the prolifick Seminals of all things generated in the Earth, doth come to their proper *matrixes* in a vapour. If any question this, let him try *Platt*'s Experiment, put *bituminous* and *combustible*

buſtible ſubſtances into two Glaſs *Retorts*, filling their necks, the one with *lean Earth*, the other with *peet-earth*, ſet them in an open *fire*, and by gradual heat the Vapours that aſcend will *petrifie*, the one Earth into *Stone*, and the other Earth into a *plain coal*. Secondly, this Vapour, if it be of ill quality, hath the ſame pernicious *effects* upon our bodies, as thoſe that are *ſublimed* by *Art* in the *fire*. This truth the Miners do ſadly experience, the *Sulphurous* Vapours that are in every *Coal-pit*, will ſoon *ſtifle* any that goes into it before it be purged by air conveyed to it. Thirdly, this Vapour Nature can no more cauſe to aſcend upward (which it doth perpetually) without heat, than *Art* can *ſublime* without *fire*. *Suppono* (ſays *Kircher*) *omnes vapores nihil aliud quàm tenuiſſima, ſubtiliſſima ac*

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insensibilia corpuscula esse, quæ calore exaltata ingentis in terreno mundo mutationis causa sunt.

Wherefore, I say, though we know that *Nitre* and *Vitriol* distill'd *divisim*, are both of them severally good, and of daily practice; yet we experience also, that distill'd *conjunctim*, they send forth the most deadly *corrosive Vapour*, which by the coldness of the Receiver is condensed to a Spirit; there can be no doubt, but if both these (as Dr. *Witty* would have it) be joined in *Scarbrough* water, it must be highly corrosive, though not to such a degree as *Aqua Fortis* is, twenty drops whereof will kill a Cat; notwithstanding I shall examine his proofs for this Vitriol of Iron, as I find them in his Book, *pag.* 9. he says, *a small quantity of Gall being put into the Spaw Water, doth turn it into a dark Claret Colour*, ergo,

ergo, *there is Vitriol in it*; this is a *non ſequitur*, for thus will the Gall turn a Coal-water, if it has gotten any touch of the *Spirit of Sulphur* to ſharpen it, for diſſolution of the black Mine that it paſſeth through: but we will ſuppoſe there is no Coal-Mine about *Scarbrough*, therefore, I ſay, it is only the *Allom-ſtone* in the *Spaw* that gives the *tincture* by the *Gall*; let experience prove it, take any *Allom-ſtone unburnt*, powder it, adde Spring-water ſharpened with the Spirit of *Nitre* that it may diſſolve it, and filter it, ſo will you have (to appearance) a water as clear as the *Spaw*, put Powder of *Gall* thereto, and it gives you the ſame *tincture*. I am witneſs that the *Chymical* Apothecary of *York* did pick out of the Hill near the *Spaw*, an *Allom-ſtone* that was not hardened in the air, but made ſoft in the *Nitre* which

abounds there, and after he mixed only Spring water with it, and added the Gall to it, it gave as high a *Claret colour*, as the *Spaw* it ſelf doth.

The Reaſon of theſe Experiments is plainly thus; the *acid* water diſſolves the black *Coal*, or the blew *Stone*, and hides the colour of them in its pores, becauſe every Atome of the *continens* muſt be *outward* to the *contentum*. The Gall being put in and ſtirred amongſt it, by its *Alcaly* imbibing the *acidity* of the water, what is included therein is *extruded* towards the bottom, where, what is precipitated appears in its own colour, the Spirit of *Salts* adding luſtre thereto.

I will not mention here, how Dr. *Witty* commends this black ſediment for Phyſical uſe, *pag.* 10. Againſt this Experiment of *Allum* Stone

Stone giving its tincture by the Gall, let be obſerved how Dr. *Witty* miſtakes in his tryals; ſays he in his anſwer to Mr. *Simpſon*, *pag.* 91. *I have tryed the Allom Mine, having broken it to powder, and infuſed it in Spring water ſome hours, and it received no tincture from the Gall.* Good reaſon, for he did but *infuſe* it, not *diſſolve* it; can it be expected that the Gall ſhould precipitate the Allom Stone from the water, whilſt it came not into it, but only lay at the bottom undiſſolv'd? what can ſimple water extract out of a hard Slate? no more than a Feather can ſtrike fire out of a Flint Stone: Nay more (ſaith he) *I calcin'd that very Stone, and then diſſolved it in* Spring water, *and yet it received no tincture from the Gall.* Anſwer. No marvel neither, becauſe the calcin'd Stone of Allom is white; its blewneſs, which

gives the *tincture*, disappears by the *fire*; even as *red* Coral calcin'd in a Crucible turns white of Colour. Further, to let the Reader know that he will spare for no pains to give satisfaction, *pag.* 92. he *sends to two ingenious Gentlemen at* Whitby, *where is a water that breaks out of the middle of a Mine, to try if that would receive tincture from Gall, and they did both assure him it did not; besides they sent a Glass-bottle of the same water to* York, *where he tryed it himself, and it did not change at all.* Why? what's the matter? he is answered out of his own mouth, *Nay,* saith he, *I do aver with them that it is like ordinary Spring-water,* (in truth it is none other, the Labourers drink of it, to quench their thirst) *having taken no vapour, odour, or Sapour from the Mine*; yet he doth confidently conclude from this tryal that it is not from Allom

that

that this Water at *Scarbrough* takes its tincture. Such another Errand as this to *Whitby*, he makes to *Barnſley* upon the edge of *Darby-ſhire*, to try if a Spring of freſh Water that runs out of *Iron-ſtone*, would change colour with Gall: and it did not, neither there, nor at *York*. What can be inferred from hence, but that this Water which ran from the Iron-ſtone was no more concerned with the Iron, than that at *Whitby* was with the Allom; nay, *à potiori*, if a Mineral Salt of Allom whiles crude, and imbodied in its Gleeb, doth not always impart to the Spring that runs through it, either Odour, Sapour, or Vapour, as he hath ſaid before, much leſs will the Metal of Iron-ſtone do it. If his friend that for a further tryal made a hole in the bottom Stone, to ſee if the Water that ſtood in it would tinge by Gall,

had ſent him a Bottle of any Water that came from the Iron-ſtone, whilſt it was in *ſolutis principiis*, I do affirm that Water would receive tincture from Gall; ſuch a Water we have at *Hunwick*, where great quantity of Iron-ſtone is digged up, and it receives tincture from Gall as highly as *Scarbrough* doth. Dr. *Witty*, *pag.* 94. is framing an Argument *ab inductione* thus. *The tincture by Gall is not from Allom, nor from Iron*, ergo, *'tis from Vitriol*: Anſwer, I am loth to ſee my Brother in the pinfold, yet muſt I ſay, if it be from the Vitriol, it is becauſe of the Iron that is in it, for no other Vitriol but *ferrugineum* will do it: hence it will follow, if not from Iron, then 'tis not from Vitriol, *ergo*, 'tis from Allom that *Scarbrough* Water tinges by Gall.

His ſecond proof, *pag.* 11.

Sir *John Anderton* obſerved that the

the Water carried in an Oaken Veſſel, in the bottom whereof was found a *yellowiſh* ſediment, which he ſent to the Doctor, he ſaw it like *crocus Martis*, and taſted it of a *ſtiptick* quality, and therefore 'tis ſuppoſed by him to be the *Chalybeate* part of the Minerals. Anſwer, *Quæcunq; volumus, facilè credimus.* The ſharp Water agitated againſt the Oaken Veſſel, in carrying *corrodes* the inner *parts* of it, which powder ſetling to the bottom, with ſome *feces* of the *Spaw* Water produceth a ſettlement of the colour of Oak, which if he had dried, and then burnt in a Crucible, the flame thereof would have ſhown him, that it was *Wood* and not *Iron*. If different things were not ſometimes like one another, none could be deceived. *Pag.* 12. *The water at* 40 *Miles diſtance will not cruddle Milk as it doth at* Scarbrough, *and*

that it doth not receive ſuch a deep tincture from the Gall, nor is it found to have ſuch a pleaſant acidity as at the Fountain: which certainly muſt proceed from a loſs of the Vitrioline Spirits, of which it doth eminently participate. Anſwer, Who queſtions that Allom will not cruddle Milk as well as Vitriol? the more ſubtile any acid Liquor put to Milk is, the more perfectly doth it ſeparate the thick parts from the thin; 'twill follow therefore that the water hath loſt ſome of its ſubtile Spirits, by carrying, but none of the Vitriol which it never had. The tincture from the Gall I have manifeſted to proceed from the Unburnt Allom Stone, whereof this is a plain proof; put the *Spaw* Water into Glaſs Bottles at the Fountain, let them be carried abroad and left a few days, and the Allom Stone will ſettle of it ſelf without any

mixture

mixture of Gall, to the bottom, in a blackiſh Powder, which cannot be any thing of *Chalybs*, for two Reaſons; Firſt, becauſe the *Vitrioline* Spirit, and Iron are too great friends (being once met together) to be ſo eaſily ſeparated. Any that have prepared *Vitriolum Martis*, he hath learned this Note by it. Secondly, when the Vitrioline Water doth ſettle its Colcothar without adding Gall to it, it is always of a yellow Colour. This may be ſeen in the Stone Baſon and Spout of *Knaisbrough Spaw*, where the Water paſſing continually in the open air over it, hath precipitated *Crocus Martis*, as I may call it thereupon. The like may be obſerved in every runner near the Fountain head of any Vitrioline or Chalybeate water whatſoever. His Argument for Iron, *pag.* 14. *The Earth that falls from the*

Bank

Bank turns to Iron-ſtone, as hard as Iron it ſelf, and fuſible being put into a Smiths Forge, as I have ſometimes found upon tryal: There is a piece of the Cliff within one hundred paces of the Spaw, *thus converted in a very few years to an Iron Stone, as much as would load three or four Carts*: Anſwer, I here require the Smith to make Horſe-ſhoe Nails of it, and then I ſhall yield to Dr. *Witty*, thus much, that within a hundred Paces of the *Spaw* Weſtward there is Iron-ſtone. To me it doth appear to be a reddiſh Earth diſſolved with the Nitroaluminous Salt, and petrified in the Sun and Air to a hard lump, which will flux in the Fire, anſwerable to the Nature of that Salt that is in it. Another Argument for Iron (which for manners ſake I leave laſt) is that the *Water colours the Excrements black*: he ſhould have ſaid *blew*, for

when

when he looks back again, they will appear of the ſame colour that Allom Stone is of. In his Anſwer to Mr. *Simpſon*, pag. 42. *I knew* (ſaith he) *Vitriol to be in the water from its eminent acidity.* Anſwer. This is a *non ſequitur*, for acidity is appropriated to the Spirit of Nitre, as well as to the Spirit of Vitriol. *Pag.* 43. Another token of Vitriol is, *that Vitrioline vapour which any one of an indifferent ſmell may obſerve, which is ſomething likely of Ink, though more pure.* Anſwer. Take this Experiment to know what ſmell *Scarbrough Spaw* is of, (*viz.*) Take oily Water (after all the Chriſtals are ſettled from it mentioned before) exhaled perfectly dry; adde hot water to it, then ſtir it, and if it do not ſtink as bad, or worſe than the Allom-pans at *Whitby*, I will forfeit my Noſe: why then ſays Dr. *Witty* 'tis a more

pure

pure ſmell than that of Ink. *Dulcis odor lucri ex re quâlibet.* Pag. 44. *Six ſcore paces from the* Spring *a* Vitrioline Salt, *of a dark yellow colour, ſweats out of the Cliff.* Anſwer. The Nitre ſpires out of the Cliff all along Weſtward from the *Spaw*, of a white Colour, this he confeſſeth to be none other than Nitre; at a further diſtance it changeth Colour to a dark yellow, as the Earth doth out of which it ſweats: Let him hear *Kircher* confirming this truth, *Capite de nitro; Quod ſi ſubindè nitrum variis coloribus imbutum reperiatur, id nil tamèn diverſum à nitro, arguit cùm omnem colorem à colore terræ ex qua extractum fuit, trahat, ſi ex rubro, rubrum; ſi ab albo, album, & ſic de cæteris, pag.* 304. *l.* 6. Page 67. *The black ſediment precipitated by the Gall, I Calcin'd* (ſays Dr. *Witty*) *and it became of a dark brown colour,*

lour, and is none other than Scoria of Iron (he calcin'd likewiſe the whole Body of Minerals) *and there are in it here and there flakes of Iron, broad and thin, like thoſe that flie off from the Smiths hammer.* Anſwer. This calcin'd Sediment, and calcin'd Body are all one Experiment; for the Gall precipitates the groſs parts whatſoever they be: no marvel then if it became as hard as a Cinder, which had ſo much Stone in it as I have proved; for thoſe flakes of Iron that are diſcovered in the Body of Minerals, I confeſs I am not ſo ingenious, I never yet undertook *his method* in ſearching what different parts were in this compound Water, to calcine the whole Body of Minerals together, as that only expedient way; yet I *calcin'd* the *Stone* Powder, where moſt likely it ſhould be intermixed, and there they are not. I *calcin'd* alſo the

Clay

Clay, neither are any *Iron flakes* there, wherefore it must be supposed, like as he *smelt* the *Vitriol*, so he *saw* the *Iron flakes*, *id est*, something like them.

The right improvement of this Water consists in three indications.

First to resist (if it were possible) the petrifying property; but this being to the Water *proprium quarto modo*, small help can be had against it.

Secondly, To hinder that the *Stone* Powder, and *feces* of the Allom fix not in the Bowels.

Thirdly, To prevent in tender constitutions that the duplicated Salt corrode not the Entrails, causing thereby a Dysentery, which (says Dr. *Witty*, *pag.* 150.) rarely happens.

All the harm that *Scarbrough* water is guilty of, proceeds from one of these causes.

In

In his Answer to Mr. *Simpson*, I read thus, *pag.* 238. *And though Mr.* Simpson *has design'd causlesly to rob me of the honour and reputation* (if there be any in it) *of my discovery of* Scarbrough Spaw, *with its usefulness to my Country, yet if he have any thing to make out in point of Art, I shall never go about to eclipse it, but thank him to boot.*

As he is a man of his word, I expect thus much from him.

FINIS.